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- VI. *The way of proceeding in the Small Pox Inoculated in New England. Communicated by Henry Newman, Esq; of the Middle Temple.*
- VII. *A Letter from Dr. Nettleton, Physician at Halifax in Yorkshire, to Dr. Whitaker, concerning the Inoculation of the Small Pox.*
- VIII. *A Letter from the same Learned and Ingenious Gentleman, giving an Account of his farther Progress in Inoculating the Small Pox: To Dr. Jurin, R. S. Secr.*
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- I. *The Longitude of Buenos Aires, determin'd from an Observation made there by Pere Feuillée. By Edm. Halley LL. D. Astronomer Royal, and F.R. S.*

I HAVE as Occasion offered, made it my Business to collect such Celestial Observations as might be of Use to determine the Longitudes of Places on the Sea-coast of the World; in order to get as near as possible the Out-line, or true Figure of the Earth, without which our Geography of the Inlands must necessarily be very insufficient. The Memoirs of the Royal Academy of *Paris*, afford a good Number of Observations of this Kind, and among the rest, there is one made at *Buenos Aires* on the River of *Plate*, in the South America, by *Pere Feuillée* in his Voyage to *Peru*: who, in the Memoirs for the Year 1711, is said to have observed at that Place on the 19th of August, 1708. the Immersion of the Star in the Southern Foot of *Virgo* (marked by *Bayer* with λ) behind the obscure Limb of the Moon. Being desirous to see what Longitude might be deduced from this

this Observation, I soon found that there was a Fault in the Day, and likewise in the Star; for that λ of *Virgo* was then nearly in 3 Degrees of *Scorpio*, and the Moon would not be there till the next Day, *Monday* the 20th of *August*; and the Latitude of λ being about half a Degree North, the Moon at that Longitude would be about 3 Degrees more Southerly than the Star, and consequently far from Eclipsing it; for that at that time the descending Node was in the very Beginning of *Libra*. Hence I concluded it must be some other Star, that *Pere Feuillée* observed Eclipsed by the Moon: The Day was certainly the 20th and not the 19th of *August*, as was evident by the Place of the Moon; but as to the Star, it was neither in the *Tychonick* Catalogue, nor yet in that more copious *British* Catalogue of Mr. *Flamsteed*; but turning over that of *Hevelius*, I found a Star whose Situation agreed well with the Observation, and was undoubtedly the Star that was seen to immerge behind the Moon: The Place Mr. *Hevelius* gives it, allowing the Precession of the Equinox, was then $m\ 1^{\circ} 56'\frac{1}{4}$ with South Latitude $2^{\circ} 51'\frac{1}{4}$. It remained then for me to be assured of the Place of this Star, and accordingly on the 21st and 24th of *December* last, I got such Observations by help of the circumjacent Stars, that I was assured the Place of the Star, (which is a fair Star, of the 5th Magnitude) was at that time, $m\ 1^{\circ} 58' 40''$ with South Latitude $2^{\circ} 54'\frac{1}{4}$, being above 2' in Longitude, and 3' in Latitude, more than *Hevelius* gives it. The Hour of this Occultation is set down precisely $7^h 5' 38''$ at *Buenos Aires*, the Latitude of the Place being $34^{\circ} 35'$ South. Whence the Altitude of the Moon there was then $42^{\circ} 48'$, and the Parallaſtick Angle $76^{\circ} 38'$, and the Parallax in Longitude $40' 11''$ to the *West* and in

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Latitude

Latitude $9^{\circ} 33''$ to the *North*. So the Moon's observed Place corrected by Parallax was $2^{\circ} 28' 4''$ with South Latitude $2^{\circ} 52\frac{1}{2}'$. To this Place, by the *Calculus* of those Numbers I have fitted to our President's Theory of the Moon (but which would be improper and too long to be here recited) the Moon will be found to have arrived *August* the 2^d at $10^h 57' 36''$ apparent Time at *London*. But at *Buenos Aires* it was then computed but $7^h 5' 38''$, whence the difference of Longitude resulting from this Observation is $3^h 52'$ or 58 Degrees, by how much *Buenos Aires* is more Westerly than *London*. I have twice repeated the Calculation to be sure to avoid error, and by comparing my Chart of the Variation with the Longitude thus found, it appears that in this Case a Ship at Sea using those Tables and that Chart, would by an Observation of this Occultation have fallen with greater exactness on the Coast of *America*, than by any Reckoning can be pretended to be done.
